EPA's Air Rules for the Oil & Natural Gas Industry

SUMMARY OF REQUREMENTS FOR PROCESSES AND EQUIPMENT AT NATURAL GAS PRODUCTION GATHERING & BOOSTING STATIONS

A gathering and boosting station collects gas from multiples wells and moves it toward the natural gas processing plant. On August 18, 2015, EPA proposed updates to its 2012 New Source Performance Standards for the oil and gas industry to reduce emissions of greenhouse gases – most notably methane – along with smog-forming volatile organic compounds (VOCs). The updates would add methane to the pollutants covered by the rule, along with requirements for detecting and repairing leaks, and requirements to limit emissions from pneumatic pumps used at gathering and boosting stations.

Also on August 18, 2015, EPA issued draft Control Techniques Guidelines (CTGs) for states to use to reduce VOC emissions from existing processes and equipment at gathering and boosting stations in areas subject to CTG requirements.

Finding and Repairing Leaks

- Leaks, also known as "fugitive emissions," can occur at a number of points at a natural gas production gathering and boosting station when connections are not properly fitted, hatches are not properly weighted and sealed, or when seals and gaskets start to deteriorate. Leaks are a significant source of methane and VOC emissions in the rapidly growing oil and gas industry.
- EPA is proposing to require that owners/operators of production gathering and boosting stations use a technology known as optical gas imaging to conduct a leaks monitoring survey. Optical gas imaging equipment uses a special camera to "see" emissions of methane and VOCs.
- The survey would cover a number of components, including valves, connectors, pressure-relief devices, open-ended lines, access doors, flanges, crank case vents, pump seals or diaphragms, closed vent systems, compressors, separators, dehydrators, and thief hatches on storage tanks, among others.
- For new gathering and boosting stations, owners/operators would have to conduct the survey within 30 days after startup. For modified stations, the survey would have to be conducted within 30 days of the modification. After the first survey, leaks monitoring surveys would be conducted twice a year.

- Any leaks found during the surveys would have to be repaired within 15 days, unless the repair would require shutting down production. In that case, owners/operators would be required to fix the leak at the next scheduled shutdown.
    - Equipment that vents natural gas as part of normal operation are not considered to be leaking and would not be covered by this requirement; however, leaks surveys can also help operators detect malfunctions in these devices, such as pneumatic controllers.
- The proposed rule includes incentives for minimizing leaks:
    - If leaks are found from less than 1 percent of covered components during two consecutive surveys, owners/operators may conduct the monitoring survey yearly instead of every six months.
    - If leaks are found from 1 to 3 percent of covered components, operators would have to continue monitoring every six months.
    - Operators of sites with leaks from more than 3 percent of covered components during two consecutive monitoring surveys would have to monitor every three months.
- EPA is soliciting comment on whether to allow operators to conduct the leaks monitoring survey using EPA Method 21 as an alternative to optical gas imaging. Method 21 is an EPA method for determining VOC emissions from process equipment. The method is based on using a portable VOC monitoring instrument, such as an organic vapor analyzer (sometimes referred to as a "sniffer").
- The agency also is seeking comment on requiring the monitoring survey to be conducted annually or quarterly.

New & Modified Pneumatic Pumps

- Pneumatic pumps use gas pressure to drive a fluid. These pumps often are used at natural gas production sites where electricity is not readily available. In natural gas production, pneumatic chemical injection pumps are primarily used to inject small amounts of chemicals to limit production problems and protect equipment. Pneumatic diaphragm pumps are used to transfer fluids or to circulate glycol "heat trace medium," which is used to keep pipes and equipment from freezing, for example.
- EPA is proposing to require that VOC and methane emissions from pneumatic pumps be controlled by 95 percent if an emission control device is already on site. This reduction would be accomplished by routing the emissions from the pump to the existing control

device, which may already be located at the gathering and boosting station to control emissions from other equipment, such as storage tanks.

Requirements for Equipment Covered by the 2012 Rules

- EPA is proposing to add methane standards for the equipment and processes covered by the 2012 NSPS for VOCs. In its analysis of the Best System of Emission Reduction (BSER) for the proposed rules, EPA has determined that best systems for reducing methane and VOC emissions are the same. As a result, EPA is proposing that the requirements for the following new and modified equipment and processes would be the same as the requirements in the 2012 rule:
    - New and modified compressors (centrifugal and reciprocating)
    - New and Modified Pneumatic Controllers
- The 2012 rules included requirements for storage tanks at natural gas transmission stations. Today's proposal would not change those requirements.

Sources Subject to Draft Control Techniques Guidelines

CTGs apply in ozone nonattainment areas classified as Moderate and above, and throughout the Ozone Transport Region

- EPA's draft Control Techniques Guidelines for reducing VOC emissions from the oil and natural gas industry would cover several types of existing processes and equipment at gathering and boosting stations.

- CTGs do not apply any requirements directly to facilities; rather, they provide recommendations for state and local air agencies to consider in determining reasonably available control technology (RACT) for reducing emissions from covered processes and equipment. States may use different technology and approaches, subject to EPA approval.

- EPA's RACT recommendations for processes and equipment at natural gas gathering and boosting stations are:

    - Compressors – Reduce VOC emissions by at least 95 percent from each centrifugal compressor with a wet seal system; for reciprocating compressors, reduce VOC emissions by replacing rod packing after 26,000 hours of operation or 36 months, or route rod packing emissions to a process through a closed vent system under negative pressure.
    - Leaks (fugitive emissions) – Implement an optical gas imaging monitoring and repair program; includes monitoring twice yearly.
    - Pneumatic controllers -- Limit natural gas bleed rate to 6 standard cubic feet per hour or less, with exceptions for operational requirements and safety.

- Pneumatic pumps – Reduce VOC emission from each gas-driven chemical/methanol and diaphragm pump by at least 95 percent, if there is an existing control device on site.
- Storage tanks – Reduce VOC emissions by 95 percent at each storage tank with the potential to emit 6 tons or more of VOCs a year.

MORE INFORMATION

- For summary information on proposed requirements for other types of facilities in the oil and gas industry, to read the proposed rule, and to read the draft CTGs, visit www.epa.gov/airquality/oilandgas